



CHEMISTRY NMDCAT

(UNIT-3)

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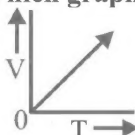
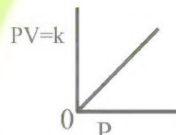
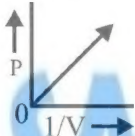
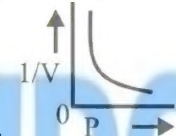
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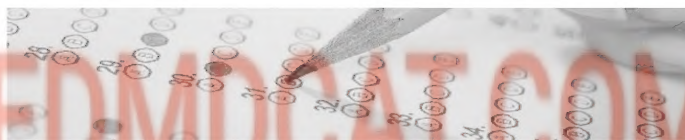
TOPICS

✓ GASES

- Q.1** R.J Clausius deduced an equation for the pressure of an ideal gas from the postulates of kinetic theory. This equation is called kinetic equation, the correct mathematical form of it is
- a. $PV = \frac{1}{2} mNc^2$ b. $PV = \frac{1}{3} mNc^2$
c. $PV = nRT$ d. $PV = \frac{1}{3} Nc^2$
- Q.2** The motion imparted to the gaseous molecules due to their motion in all possible directions is known as
- a. Rotational motion b. Vibrational motion
c. Translational motion d. Linear motion
- Q.3** Which of the following is equal to -12°C temperature
- a. 285 K b. -261 K
c. -12 K d. 261 K
- Q.4** If 50cm^3 of a gas in a syringe at 15°C is heated to 50°C and the piston of syringe is allowed to move outwards against constant atmospheric pressure, the new volume of the hot gas will be _____
- a. 50cm^3 b. 44cm^3
c. 40cm^3 d. 56cm^3
- Q.5** Select the correct formula for determination of molecular mass from ideal equation (W and m are used for mass of gas)
- a. $M = \frac{MPW}{RT}$ b. $M = \frac{WRT}{PV}$
c. $M = \frac{MRT}{PV}$ d. Both "b" and "c"
- Q.6** Which of the following is correct numerical value of general gas constant "R" at S.T.P
- a. $0.0821\text{dm}^3\text{atm mole}^{-1}\text{K}^{-1}$ b. $8.314\text{dm}^3\text{atm mole}^{-1}\text{K}^{-1}$
c. $0.0821\text{Jmole}^{-1}\text{K}^{-1}$ d. $62.4\text{ cal mole}^{-1}\text{K}^{-1}$
- Q.7** At high temperature the kinetic energy of the gaseous molecules is very high. As a result the attractive forces between them are
- a. Stronger b. Weaker
c. Negligible d. Prominent
- Q.8** At 17°C , a sample of H_2 gas occupies 125cm^3 . What would be the volume at 307°C by keeping pressure constant
- a. 125cm^3 b. 250cm^3
c. 415cm^3 d. 350cm^3
- Q.9** According to quantitative definition of Charles's law, at constant pressure, the volume of given mass of a gas increases or decreases by _____ of its original volume at 0°C by 1°C rise or fall of temperature, respectively
- a. 273 b. 1
c. $\frac{1}{100}$ d. $\frac{1}{273}$



- Q.10** The hypothetical temperature at which the given volume of a gas reduces to zero is called _____
- a. Critical temperature
b. Absolute zero
c. Upper consolute temperature
d. Transition temperature
- Q.11** Volume of a gas at STP is 10 dm^3 , at what temperature its volume will become 30 dm^3 , keeping pressure constant
- a. 3°C
b. 819°C
c. 3K
d. 819K
- Q.12** If pressure and absolute temperature of the gas is doubled what happens to volume of the gas
- a. Increases two times
b. Reduces one by four times
c. Increases four times
d. Remain unchanged
- Q.13** Which of the following gas has lowest density at same temperature and pressure?
- a. CH_4
b. CO_2
c. N_2
d. CO
- Q.14** A gas is considered as an ideal if
- a. $b = 1$, $a = 1$
b. $a = 0$, b is maximum
c. $a = 1$, b is maximum
d. $a = 0$, $b = 0$
- Q.15** $\text{K.E} \propto \text{Temperature}$, with proportionality constant
- a. $\frac{2R}{N_A}$
b. $\frac{3R}{N_A}$
c. $\frac{2R}{3N_A}$
d. $\frac{3R}{2N_A}$
- Q.16** The postulate of KMT of gases that needs to be corrected at low temperature
- a. No force of attraction among gas molecules
b. Gravity has no effect on the motion of gas molecules
c. Volume of gas molecules is negligible as compared to the total volume of the gas
d. All of these
- Q.17** Which graph represents Charles's law
- a. 
b. 
c. 
d. 
- Q.18** Under constant pressure when the temperature of fixed mass of gas is increased three times then its volume becomes
- a. $3V$
b. $V/3$
c. $6V$
d. $V/6$
- Q.19** A real gas behaves ideally at
- a. High pressure, low temperature
b. Low pressure, high temperature
c. High pressure, high temperature
d. Low pressure, low temperature
- Q.20** Which one has more mass at STP
- a. 1 dm^3 of O_2
b. 1 dm^3 of He
c. 1 dm^3 CO
d. 1 dm^3 CH_4
- Q.21** At constant temperature volume of the given mass of a gas is directly proportional to the inverse of pressure exerted on it, is called
- a. General gas law
b. Charles's law
c. Boyle's law
d. Avogadro's law
- Q.22** Density of an ideal gas is inversely related to
- a. Temperature
b. Molecular mass
c. Pressure
d. General gas constant



a. 8dm^3

c. 6dm^3

b. 4dm^3

d. 2dm^3

a. He

c. H₂

b. Cl_2

d. CO_2



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Q.25 Which of the following statement is applicable for both ideal and real gases molecules?

- a. Have no force of attraction
- b. The actual volume of gas is negligible as compared to the volume of gas
- c. Collisions between the molecules is elastic
- d. Molecules are in random motion

Q.26 Density of gas will increase with

- a. Rise in temperature
- b. Rise in volume
- c. Increase in pressure
- d. Decrease in pressure

Q.27 For a given mass with initial volume 'V', if pressure is reduced to one half and absolute temperature is increased two times. The volume will become

- a. $2V^2$
- b. $\frac{V}{4}$
- c. $4V$
- d. $6V$

Q.28 Zero absolute is the temperature where

- a. Electronic motion is cased
- b. Translational motion is cased
- c. Nuclear spin is ceased
- d. Molecular motion is ceased

Q.29 The average kinetic energy of gas molecules varies directly as

- a. Pressure of gas
- b. Absolute temperature of gas
- c. Density of gas
- d. Volume gas

Q.30 The ratio between increase in volume with rise of temperature as suggested by Charles's law:

Options	V	T(°C)
a.	273	1
b.	1	1
c.	1/273	1
d.	546	1

Q.31 The Van der Waal's equation i.e; $\left(P + \frac{n^2a}{V^2}\right)(V - nb) = nRT$ is used for

- a. Real gases
- b. Ideal gases
- c. Non-ideal gases
- d. Both "A" and "B"

Q.32 760torr is equal to _____

- a. 760 pascal
- b. 101325pascal
- c. 1.01325 pascal
- d. 101.325 pascal

Q.33 The number of molecules of 4g H₂ are _____ number of molecules of 56g of N₂

- a. Equal to
- b. Less than
- c. Greater than
- d. None of these

Q.34 What volume would one mole of hydrogen occupy at S.T.P.?

- a. 11.2 dm³
- b. 22.4dm³
- c. 33.6 dm³
- d. 44.8dm³

Q.35 According to kinetic molecular theory K.E of molecules increase when they

- a. Are mixed with other molecular at low temperature
- b. Are frozen into solid
- c. Are condensed into solid
- d. Are melted from solid to liquid state

Q.36 The particles of a gas can be described as

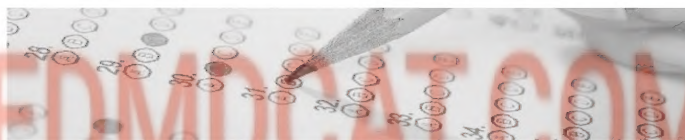
- a. Only moving outwards in direction
- b. Vibrating about defined position
- c. Rising upwards
- d. Moving randomly in all directions

Q.37 Gases are considered to be composed of minute discrete particles called

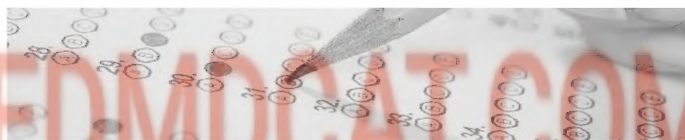
- a. Atoms
- b. Molecules
- c. Ions
- d. Elements

Q.38 Which of the following types of motions are present in triatomic molecule

- a. Translational
- b. Rotational
- c. Vibrational
- d. All of these



- Q.39** Which of the following temperature may be called as coldest temperature
a. 0°C b. -273.16°F
c. -273.16K d. -459°F
- Q.40** According to kinetic molecular theory, average speed of gas molecules and molecular mass of gas have _____ relationship
a. $V \propto \sqrt{\frac{1}{M}}$ b. $V \propto \sqrt{M}$
c. $V \propto M$ d. $V \propto \frac{1}{M}$
- Q.41** The molecules of which gas has highest average kinetic energy at 25°C
a. CO_2 b. O_2
c. CH_4 d. All have same
- Q.42** Volume of given mass of gas at 0°C is 273dm^3 , volume of same gas at 10°C at constant pressure will be
a. $273\left[1 + \frac{10}{273}\right]\text{dm}^3$ b. $\left[273 + \frac{283}{273}\right]\text{dm}^3$
c. $273\left[1 - \frac{10}{273}\right]\text{dm}^3$ d. $\left[273 + \frac{10}{273}\right]\text{dm}^3$
- Q.43** CO_2 will show more non-ideal behaviour at
a. 17°C b. 0°C
c. 100°C d. 273°C
- Q.44** Density of gas is maximum at
a. STP b. $5\text{ atm} / -273^{\circ}\text{C}$
c. $1\text{ atm} / 273\text{ k}$ d. $0^{\circ}\text{C} / 5\text{atm}$
- Q.45** Equal mole of different gases at STP have different
a. Volume b. Number of molecules
c. Masses d. All of these
- Q.46** A gas will be more ideal at
a. S.T.P b. $100^{\circ}\text{C} / 5\text{atm}$
c. $273^{\circ}\text{C} / 1\text{ atm}$ d. $-273^{\circ}\text{C} / 5\text{atm}$
- Q.47** The term 'b' cannot be named as
a. Effective volume b. Excluded volume
c. Actual volume d. Both 'a' and 'b'
- Q.48** Critical temperature of O_2 , N_2 , H_2 and CO_2 are -118.8°C , -147.1°C , -239.9°C and 31.1°C respectively. Which gas among following is most ideal
a. H_2 b. O_2
c. CO_2 d. N_2
- Q.49** At a given temperature and pressure, 14g nitrogen will have same volume as 14g of
a. Oxygen b. Carbon dioxide
c. Carbon monoxide d. Neon
- Q.50** The molar volume of N_2 is maximum at
a. 273 K and 2 atm b. 273°C and 1 atm
c. 0°C and 2 atm d. STP



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Chem T-3

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Regards.Huzaiifa Saeed,Usama Sohail

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